What is claimed:

1. An illumination device comprising:

a substrate having a surface and including a highly thermally conductive heat spreader;

a plurality of light emitting diodes (LEDs) supported by the surface, the LEDs arranged in an array to provide illumination;

at least one reflective barrier at least partially surrounding each LED, the reflective barrier shaped to reflect away from the LED light emitted by other LEDs in the array;

the LEDs and the reflective barrier thermally coupled to the heat spreader to dissipate heat generated by the LEDs and heat produced by light absorption.

2. The device of claim 1 wherein the substrate comprises an LTCC-M heat spreader.

3. The device of claim 1 wherein the at least one reflective barrier comprises a periodic array of troughs and reflective ridges, the ridges shaped to reflect away from an LED light from an LED in an adjacent trough.

4. The device of claim 1 wherein the at least one reflective barrier comprises a reflective ridge shaped to reflect away LED light from an adjacent LED.

5. The device of claim 1 wherein at least one reflective barrier comprises a cup substantially peripherally surrounding an LED to reflect light away from adjacent LEDs.

6. The device of claim 4 wherein the at least one reflective barrier comprises an array of cups, each cup substantially peripherally surrounding a respective LED to reflect light away from adjacent LEDs.

7. The device of claim 1 wherein the at least one reflective barrier comprises a plurality of reflective circular sectors arranged in a circle, each reflective sector shaped to reflect away light from other sectors in the array.

8. The device of claim 1 wherein the at least one reflective barrier comprises a cavity having reflective walls and one or more smoothly curved reflective edges formed by the cooling of molten metal.

9. The device of claim 1 wherein the at least one reflective barrier is shaped to provide directional illumination.